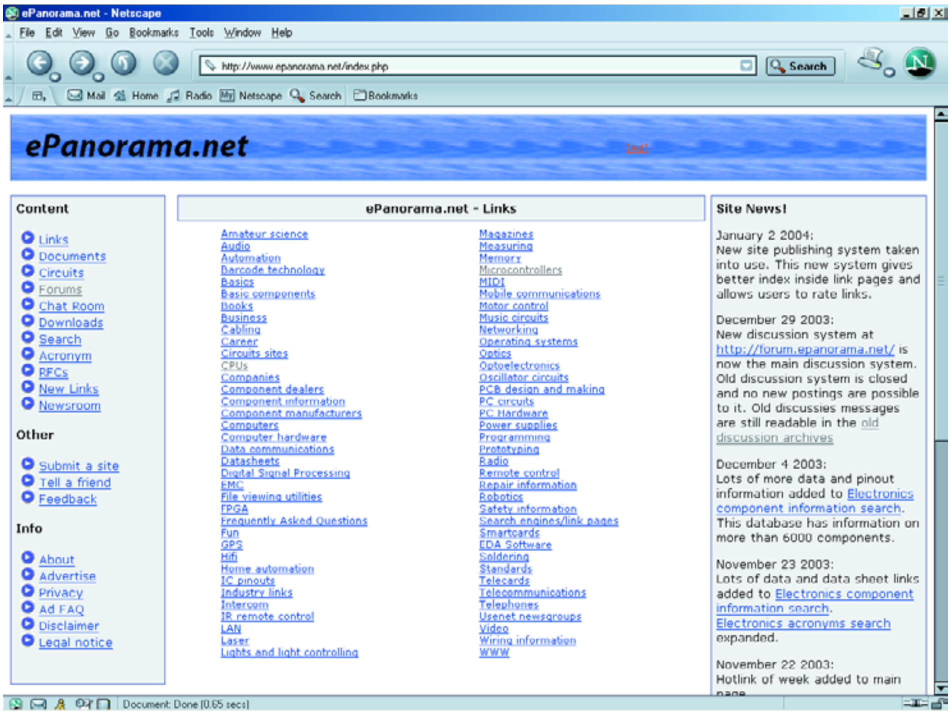
500 Links on Microcontrollers

Datasheets and applications

By Harry Baggen

Microcontrollers have become firmly established in modern electronic circuits. These multi-legged beasts use programs to do all sorts of things. Depending on signal levels presented to them, micros are capable of taking decisions and controlling entire processes. A micro, then, offers a good way to add intelligence to your circuit. But where do you start picking the right type?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Repair information
Robotics
Safety information
Search engines/link pages
Smartcards
EDA Software
Soldering
Standards
Telecards
Telecommunications
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Usenet newsgroups
Video
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WWW

Site News!

January 2 2004:
New site publishing system taken into use. This new system gives better index inside link pages and allows users to rate links.

December 29 2003:
New discussion system at http://forum.epanorama.net/ is now the main discussion system. Old discussion system is closed and no new postings are possible to it. Old discussies messages are still readable in the old discussion archives

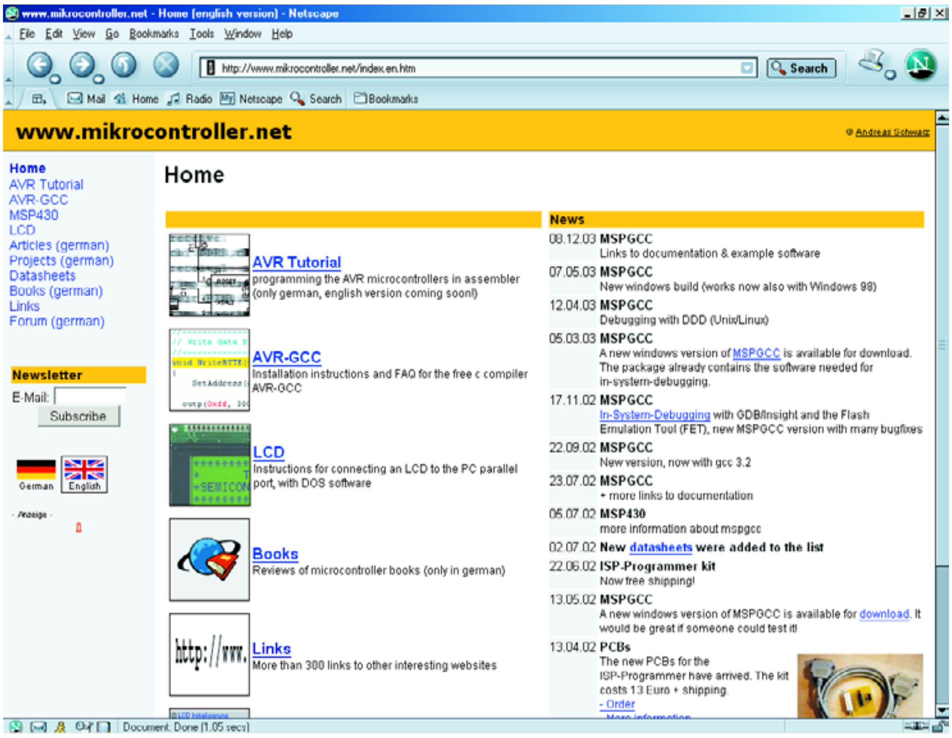
December 4 2003:
Lots of more data and pinout information added to Electronics component information search. This database has information on more than 6000 components.

November 23 2003:
Lots of data and data sheet links added to Electronics component information search. Electronics acronyms search expanded.

November 22 2003:
Hotlink of week added to main page

Over the past few decades we've witnessed the increasing dominance of microcontrollers in electronics in general. These days, it is almost impossible (and a waste of time and money) to design new digital circuitry of some complexity without incorporating a microcontroller. In the past, designers when faced with complex logic did not hesitate to throw in dozens of TTL or CMOS integrated circuits resulting in a monstrous, current devouring circuit whose reliability was often inversely proportional to the number of parts on the board(s). That has changed dramatically, today's designers searching for a controller with sufficient 'power', I/O resources and a bunch of integrated extra functions. Having added some external hardware to the micro, the circuit design will typically continue on a computer, which is logical because the PC allows the software for the micro to be developed, too, and it's the software that determines the final functionality of the circuit.

A wide range of microcontrollers is currently on the market. Over the years, various manufacturers have designed their own 'families', always extending processor capabilities by introducing better and larger follow-up types. It is fair to say that the microcontroller has evolved from a sluggish liveryman to a really fast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AVR Tutorial
programming the AVR microcontrollers in assembler (only german, english version coming soon!)

AVR-GCC
Installation instructions and FAQ for the free c compiler AVR-GCC

LCD
Instructions for connecting an LCD to the PC parallel port, with DOS software

Books
Reviews of microcontroller books (only in german)

Links
More than 300 links to other interesting websites

News

08.12.03 **MSPGCC**
Links to documentation & example software

07.05.03 **MSPGCC**
New windows build (works now also with Windows 98)

12.04.03 **MSPGCC**
Debugging with DDD (Unix/Linux)

05.03.03 **MSPGCC**
A new windows version of MSPGCC is available for download. The package already contains the software needed for in-system-debugging.

17.11.02 **MSPGCC**
In-System-Debugging with GDB/Insight and the Flash Emulation Tool (FET), new MSPGCC version with many bugfixes

22.09.02 **MSPGCC**
New version, now with gcc 3.2

23.07.02 **MSPGCC**
+ more links to documentation

05.07.02 **MSP430**
more information about mspgcc

02.07.02 **New datasheets were added to the list**

22.06.02 **ISP-Programmer kit**
Now free shipping!

13.05.02 **MSPGCC**
A new windows version of MSPGCC is available for download. It would be great if someone could test it!

13.04.02 **PCBs**
The new PCBs for the ISP-Programmer have arrived. The kit costs 13 Euro + shipping.
- Order

calculation wonder chip offering lots of possibilities.

Today, the user is offered a dazzling number of options to choose from, including the number of I/O pins, memory size, Flash or conventional memory for program code and non-volatile data, speed compromised by power economy — you mention it, the silicon industry has it all. Nearly all microprocessor manufacturers boast a number of types with extra functionality as compared with other, lesser, family members. These functions may include A/D and D/A converters, various communication interfaces (like I^{2}C and RS232), extra connections for hooking up an LCD and even in-built sensors to measure, say, temperature.

Not surprisingly, microcontroller manufacturers were among the first in the entire electronics industry to employ the Internet as a medium to offer not only complete datasheets but also application notes on their products, all free of charge. Today, the Internet is the first resource to dive into if you're after detailed information on a certain micro. Fair enough, but in addition to these sites there's such an overwhelming number of others containing, 'less official' but equally useful information you're soon lost and can't see the wood for the trees.

The two websites discussed in this month's instalment of Electronics Online put 500 links to microcontroller-related information literally at your fingertips. The links come properly grouped and sorted by the kind and bright souls that put these web pages together. The main orientation is by controller family, with further sub-classification according to the type of information offered in the case of extremely popular controllers.

The first website we'd like to tell you about is **ePanaorama** [1], an electronics portal site offering a massive number of linked neatly organised in categories. That makes ePanorama a great resource for 'all things electronic', that is, not just microcontrollers, and we feel it deserves a place in your browser's Favourites folder! A click on the subject 'microcontrollers' takes you to an index page showing sub-topics like general information, software and microcontrollers. The last subject is again divided to reflect today's most popular controller types:

PICs
Intel 8051/8052
x86 processors
Basic Stamp
Motorola 68HC11
Scenix microcontrollers
SGS-Thomson microcontrollers
ARM
PowerPC
Atmel microcontrollers
Hitachi
Zilog
Picaxe
Rabbit controllers

Each family is given a general introduction followed by a number of links complete with short descriptions of what to expect at the page you'll end up by following the hyperlink!

The second website we'd like to mention is called **Mikrocontroller.net** (no typo) [2]. It is available in two languages, German and English. Unfortunately some parts have not yet been translated into English but that is unlikely to be a problem for most links on the site. A click on the 'Links' button takes you to an overview of more than 300 links, all neatly arranged by controller family:

8051 & compatible types
AVR
PIC
68HCxxZ80
MSP430
M16C
Various controllers

Next, there's a number of links to allied subjects like prototyping, soldering, FPGA, CPLD, GAL, DSP and ARM.

Although the descriptions with the links are limited, most of them succeed in making clear what to expect on the hyperlinked pages. A smart addition to the website, national flag symbols indicate the language(s) in which the information is presented.

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Internet addresses

[1] ePanorama: www.epanorama.net/index.php
[2] Mikrocontroller.net:
www.mikrocontroller.net/index.en.htm